April 16, 2018

Department of Toxic Substances Control (DTSC)
Safer Consumer Products Program
P.O. Box 806 Sacramento, CA 95812-0806
calsafer@dtsc.ca.gov

Re: Proposed DTSC Listing of Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Carpets and Rugs as a Priority Product

Dear Sir or Madam:

The Global Alliance for Incinerator Alternatives (GAIA) is a worldwide alliance of more than 800 grassroots groups, non-governmental organizations, and individuals in over 90 countries whose ultimate vision is a just, toxic-free world without incineration. Our goal is clean production and the creation of a closed-loop, materials-efficient economy where all products are reused, repaired, or recycled. GAIA has been involved in advocating for creating a circular economy in the design and recycling of carpets in the U.S., primarily in California. We supported AB 1158 (Chu) and advocated for a definition of recyclability that incorporates the concept of reduced toxic inputs.

Because our focus is to protect communities and ensure that products are designed for recycling and not incinerated, we view reducing the toxic chemical load in carpets as a high priority. Therefore, GAIA strongly supports the proposed listing of carpets and rugs containing PFASs as a priority product under the Safer Consumer Products (SCP) regulations. This is an important step the Department's efforts to protect Californians from toxic PFAS chemicals that, as a class, have been linked to cancer, hormone disruption, weakened immunity, reproductive changes, and harm to other body organs and tissues.

GAIA has signed on to group comment letter that addresses questions posed by the Department for stakeholder input. Here we provide some additional feedback, unique to our organization's experience with the carpet stewardship program in California, regarding the questions posed.

I. ALTERNATIVES (in Chapter 7) SHOULD INCLUDE CARPET DESIGN

Carpet design and material choices can lower the need for chemical treatments for stain resistance. In alternatives assessment, it would be preferable to prioritize designing products that don't need chemical treatment over choosing among less toxic chemical treatments. This is a realistic option with carpets. Choosing to use and designing fibers that are inherently less prone to staining should be prioritized.

Wool fibers are considered naturally stain resistant and are usually not treated with PFAS substances. It isn't widely sold in the U.S. (less than 1% of sales) due to its expense, but wool sales are on the rise in the EU.

Nylon fibers are being designed with inherent stain resistance. According aforementioned report by Healthy Building Network, Universal Fibers uses a sulfonated nylon copolymer that renders the fiber chemically inert to acid dyes and stains. A Shaw Industries patent describes the conventional procedure as "the addition of a metal salt of sulfoisophthalic acid." Typical examples described in patents -including salts of 5-sulfoisophthalic acid42 ; diaminium, bis-3,5-dicarboxybenzensulfonate and tri-diaminium bis-3,4-dicarboxybenzensulfonate43 - are not associated with significant health or environmental hazards, but they have not been fully investigated.

Solution dyed nylon 6 or nylon 6.6 catayonic yarn is inherently stain resistant and highly recyclable. It is used in a 50% recycled fiber yarn called Econyl™ Stay Clean, made by Aquafil. The company ensures that the yarn provides stain protection without any topical treatment, but the company has not disclosed the process used.

Invista, one of the world's largest fiber manufacturers, recently obtained a patent for a "fluorine-free" surface barrier that makes carpet fibers water repellent, soil resistant and stain resistant. The treatment consists of a mixture of a clay nanoparticle, an anionic acrylic-based copolymer binding agent, and water. According to Health Building Network, "most of these non-fluorinated replacement stain repellants are imprecisely disclosed. Their health and environmental hazards are largely unassessed."[1]

Polyester carpet fibers can be made from polyethylene terephthalate (PET) and polytrimethylene terephthalate (PTT). While PET carpet fiber is highly prone to staining, PTT, which contain plant-based materials, are generally stain resistant.[2] Polypropylene (PP) fiber is also resistant to moisture and staining.

II. CONCERNS ABOUT EXPOSURES INCINERATION OF PFAS-TREATED CARPET

A considerable amount of carpet is treated in California via waste incineration (aka "transformation"). In 2016, the California carpet stewardship organization, CARE, reported that 8,774 tons of carpet waste were burned in Waste to Energy (WTE) facilities.[3] There isn't much data on PFAS emissions from the thermal treatment of carpets as these are not chemicals for which monitoring is required. Nor is there much data regarding the decomposition of PFASs in thermal waste treatment facilities. However, PFASs require high temperatures for decomposition, which is why they have been used extensively in fire-fighting foams.[4]

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[1] Healthy Building Network, 2017, *Eliminating Toxics in Carpet: Lessons for the Future of Recycling*

[2] Freedonia Group, Inc., 2015, Executive Summary, "Carpets and Rugs- Demand Sales Forecasts, Market Share, Market Size, Market Leaders" http://freedoniagroup.com/Carpets-And-Rugs.html.

[3] http://www.calrecycle.ca.gov/Carpet/AnnualRpts/2016/CARE2016.pdf

[4] T. Pancras, G. Schrauwen, T. Held, K. Baker, I. Ross, and H. Slenders, "Environmental fate and effects of poly- and perfluoroalkyl substances (PFAS)," no. 8, pp. 1–107, 2016 https://www.concawe.eu/publication/environmental-fate-and-effects-of-poly-and-perfluoroalkyl-substances-pfasreport-no-816/

Current guidance recommends that these compounds be incinerated at >1000 °C. The waste industry claims that the furnace of a typical modern mass burn incineration facility used in the North American market is designed to provide at least a one second retention time at a temperature of approximately 1,000°C in the combustion zone (after the last point of air injection) while processing waste. This has generally been accepted in North American regulations/guidelines as an appropriate requirement.[5] However, without strict control of temperatures and operating standards, PFASs may not undergo complete degradation and may persist, depending on the operating standards used by the facilities.[6] Similar to most incinerators in the U.S., the three municipal solid waste WTE incinerators in California are nearly 30 years old and frequently do not operate at optimal temperatures, which raises a concern about PFAS emissions from WTE incineration. Operations variations such as unplanned start ups and shut downs result in periods of higher emissions and add to the uncertainty about emissions from incineration.

III. CARPET RECYCLING AND WORKER SAFETY

In 2017, AB 1158 (Chu) was signed into law mandating that the current rate of carpet recycling under the CARE program double to reach 24% by 2020. One of the most common methods for recycling carpet waste is to shear off the face fiber in shredding facilities. Such facilities exist in California, including LA Fiber, which employs approximately 500 workers. These facilities are filled with carpet dust, and workers may be inhaling and ingesting PFAS. No health or body burden studies have been performed, but this concern about recycling worker safety should be noted in the report.

In conclusion, GAIA fully supports the DTSC proposal to focus on the entire class of PFAS chemicals in carpet and rug products, so as to protect Californians from these PFAS exposures. However, we believe that some greater emphasis should be placed on design without chemicals for stain resistance and that, as California's carpet waste stream is increasingly diverted for recycling, workers in the recycling industry and consumers who buy recycled are protected.

Sincerely,

Monica Wilson

Monica Wilson
Policy and Research Coordinator

[5] Stantec, 2011, "Waste to Energy A Technical Review of Municipal Solid Waste Thermal Treatment Practices Final Report," Section 4, p. 4-1.
[6] Pancras and Schrauwen